Colorado River Storage Project
Flaming Gorge Working Group
Meeting Minutes
June 23, 2016

Participation

This meeting was held Thursday, June 23, 2016, at the Uintah Conference Center in Vernal, Utah (313 East 200 South). Attendees are listed below.

Purpose of the Meeting

The purpose of these working group meetings, generally, is to inform the public and other interested parties of Reclamation's current and future operational plans and to gather information from the public regarding specific resources associated with Flaming Gorge Reservoir and the river corridor below it. In addition, the meetings are used to coordinate activities and exchange information among agencies, water users, and other interested parties concerning the Green River. Meetings are typically held in April and August each year.

This meeting held on June 23, 2016 was a special meeting called in response to questions regarding high releases from Flaming Gorge Reservoir this year.

Meeting Overview

Dale Hamilton (USBR) called the meeting to order at 7:03 p.m. with 22 attendees present (see attendees section below for a list of all attendees), and introduced key Reclamation attendees and all presenters. Presentations were then given in the following order: Ashley Nielson, National Weather Service Colorado River Forecast Center (CBRFC); Aldis Strautins, National Weather Service; Tom Chart, US Fish and Wildlife Service (USFWS); and Heather Patno, US Bureau of Reclamation. The meeting concluded at 10:18 p.m.

Runoff Forecast Presentation – Ashley Nielson, CBRFC

Ashley Neilson with the Colorado Basin River Forecast Center (CBRFC) in Salt Lake City provided a brief introduction to the CBRFC and its purpose, followed by a discussion of weather and the runoff forecast, and a brief discussion of the forecast model and the sources of uncertainty in it.

<u>Introduction to the CBRFC</u>

The Colorado River Basin Forecast Center (CBRFC) is part of the National Weather Service (NWS), which is part of the National Oceanic and Atmospheric Administration (NOAA). There are 13 River Forecast Centers in the United States. The Colorado Basin River Forecast Center is responsible for the entire Colorado River Drainage Basin. The CBRFC – made up of approximately 12 employees, primarily Hydrologists and Meteorologists – forecasts streamflows throughout the basin.

<u>Weather and Runoff Forecast Review</u>

At the end of April, the total annual precipitation for the Flaming Gorge Reservoir and Yampa River Basins was near average, and the snowpack was near average. The April 1 streamflow forecast for Flaming Gorge was 76% of average and for the Yampa River was 91% of average. Those numbers represent the most likely or average runoff scenario, however, there is a range of possible runoff scenarios that account for wetter than normal or drier than normal conditions.

After April 1, there was a shift in the weather pattern leading to storms from late April through the end of May. In April and May, the Green River Basin experienced about 200-300% of average precipitation and was 1-5 degrees cooler than average. Many areas in the basin received record or near record April-May precipitation (many areas were in the top three highest April-May precipitation years on record). The precipitation came as rain at low and mid elevations and snow at high elevations. The cool, wet weather delayed snow melt and saturated soils leading to a very efficient runoff (much of the snow melt ended up in reservoirs). Much more water than expected came from the Henry's Fork and Blacks Fork. Due to the April-May precipitation, the mid-May and June forecasts jumped from below average to well above average.

Forecast Model Discussion

The model used to forecast stream flows has a few sources of uncertainty that should be understood:

1. Weather Uncertainty – Accurate weather forecasts are important to the model and long-term weather forecasts are often not especially accurate.
2. Verifying Snowpack – It is often difficult to verify that the snow in the model matches what is present in the mountains due to limited snow gages and limited visibility in satellite imagery.
3. Observed Streamflow – USGS stream gages often have accuracy errors of 5-8%.
4. Demands/Diversions – Assumptions of operations can be incorrect.

River Critical Levels – Aldis Strautins, NWS

Aldis Strautins with the National Weather Service gave a brief presentation on River Criticality Levels in general and specifically for the Green River near Jensen USGS river gage.

River Critical Levels – General

Definitions of river critical levels were given (summarized here):

- Bankfull Stage – level at which the river begins to overflow lowest natural streambank
- Flood Stage – level that begins to impact lives, property, or commerce
    - Minor Flooding – minimal or no damage, but threatens to cause damage
    - Moderate Flooding – flooding of some structures and roads near the river, some evacuations or transfer of property
    - Major Flooding – extensive inundation of structures or roads, evacuations and transfer of property

River Critical Levels – Flaming Gorge

At the Green River near Jensen USGS gage the current critical levels are:

- Bankfull Stage – 9.0 feet -> ~18,000 cfs
- Flood Stage

- Minor Flooding – 10.8 feet -> ~24,000 cfs
- Moderate Flooding – 12.0 feet -> ~28,000 cfs
- Major Flooding – 14.0 feet -> ~36,000 cfs

There are four years when the river went above flood stage: 1983, 1984, 1997 and 2011

Larval Trigger Study – Tom Chart, USFWS

Tom Chart with the US Fish and Wildlife Service gave a presentation on the Larval Trigger Study program, including program basics, flow recommendations, and new information.

Program Basics

The program began in 1988 with the goal of recovering four fish species. The program attempts to balance the Endangered Species Act with the Law of the River. The main recovery elements are:

- Habitat and flow management
- Habitat development
- Stock endangered fish
- Manage non-native fish
- Research and monitoring

Flow Recommendations

In the study, the Green River is divided into three reaches:

1. From Flaming Gorge tailrace to the confluence with the Yampa
2. From the confluence with the Yampa to the confluence with the White
3. From the confluence with the White to the confluence with the Colorado

In addition to other flow recommendations, it is recommended that for half of the study years, the flows at Jensen be above 18,600 cfs and that the peak Flaming Gorge release be moved later to when larval razorback suckers are in the river to allow them to be moved to ponds where survival is more likely. Flow recommendations also include timing a higher release, or spike flow, to disadvantage small mouth bass spawning. When small mouth bass spawn late, they don't survive the winter, and high flows can washout eggs/larvae leading to lower survival rates.

Hydrology and Operations – Heather Patno, USBR

Heather Patno with the US Bureau of Reclamation, started by thanking those in attendance for coming and commenting. She then gave a presentation on Flaming Gorge releases, discussing the Authorities and Record of Decision that govern operations, changes in this year's inflow forecasts, flows and operations in previous years and this year, and planned operations for the remainder of 2016.

Authorities & Record of Decision Process

The Bureau of Reclamation operates based on the authorities given to it by the federal government. The authorities that govern the operations of Flaming Gorge Reservoir are:

- 1922 Colorado River Compact
- 1948 Upper Colorado River Basin Compact
- 1956 Colorado River Storage Project Act - the driver behind the construction of Flaming Gorge
- 1992 Biological Opinion - changed operations
- 2006 Record of Decision - flow and temperature recommendations

The decision process consists of 4 steps:

1. Recovery Program Request for research flows
2. Flaming Gorge Technical Working Group
3. Flaming Gorge Working Group - these meetings, typically twice a year (April & August)
4. Reclamation makes the final decision on how to operate

The USGS gage at Green River at Jensen is where compliance with the Record of Decision and other authorities is measured.

Inflow Forecasts & Operations

The variation in inflow forecasts for Flaming Gorge Reservoir for this spring's runoff were discussed. The forecasts increased significantly. The average condition (50% exceedance probability) mid-June forecast is higher than the wet condition (10% exceedance probability) reported in the May forecast.

The Flaming Gorge inflows and operations for 2011, 2013, 2015, and 2016 were discussed, highlighting the impact the reservoir has on minimizing high flows downstream of the dam and the releases made for the fish study.

The plan for operations of Flaming Gorge for the remainder of this year was discussed including beginning to ramp down from the current release of 8,600 cfs on June 29.

General Discussion

Those in attendance asked questions and provided comments at various times throughout the meeting. While the questions and comments were shared in a respectful way, it was obvious that many came out of anger and frustration. Some of the questions and comments are captured below.

Q: How much space would you have needed in the Gorge to catch the change in inflow forecasts?

Q: Knowing what you know now, would you have done anything differently?

C: The saturation of farm land was as significant this year as it was in 2011. When the river stays high for a long time the land gets wetter. Many cottonwood trees, both old and young, are dying due to too much water.

C: Farm was nearly inundated, 100 acres of alfalfa, $1000 per acre, you do the math. Received warning of the rising river, used equipment, materials, and 60 man-hours to dike property and the river came within 2-inches of coming over.

Q: What's the budget for the fish recovery program? (A: $6 million per year.)

Q: Who's more important fish or people?

Q: You've spent so many millions of dollars on this, is there any room to mitigate economic impacts to the region?

C: The human element is missing from the discussion, the general feel is that the government sees the fishing/farming/people in the area as a nuisance that they have to put up with.

Q: Should the target for full (Flaming Gorge Reservoir Elevation) be lower to be able to absorb these higher flows?

C: Fishing has been poor the last two years due to the high flows. People are now avoiding booking trips the end of May and all of June. The Green River is a world-renowned fishery and there is fear of losing that reputation.

Q: There's a lack of representation of the community in the decision making process for how the river is going to be operated, is it a good time to reopen the Biological Opinion/Record of Decision process and account for the impacts to the community?

C: Making flow changes at 6 p.m. instead of 6 a.m. would wash debris out by 6 a.m. and would make a day of fishing possible. If possible don't drop the releases from 8600 cfs to 800 cfs, it goes from one bad extreme to another. Only dropping to 1200 cfs would make a huge difference for fishing.

Next Meeting

Reclamation will be holding the Flaming Gorge Working Group meeting on Tuesday, August 25, 2016, at 11:00 a.m. at the Utah Division of Wildlife Resources offices located at 318 North Vernal Avenue, Vernal, Utah.

Presentations

Attendees

Name	Company/Title
Dale Hamilton	Reclamation/Manager
Doug Burton	GROGA
Heather Hansman	Freelance journalist
Paul Sheffer	Farmer
Ka Lynn Sheffer	Farmer
Brent Sheffer	Farmer
Jent Sheffer	Farmer
Bruce Lavoie	OARS/DHRE
Kevin Clegg	Flaming Gorge Resort
Clyde Watkins	Duchesne County Water Conservancy District
Ashley Nielson	NOAA/NWS/CBRFC
Peter Williams	Dinosaur National Monument
Gary Henrie	Reclamation – Provo
Rick Baxter	Reclamation – Provo

Amee Andreason	Reclamation – UC Region SLC
Platt Price	TP Farms
Scott Bingham	Farmer
Ryan Kelly	Trout Creek Flies
Dave McDonald	Sweet Lorraine's B&B
Doug Roberts	Old Moe Guide Service